

THE GENUS *NELTUMIUS* (COLEOPTERA: BRUCHIDAE)By JOHN M. KINGSOLVER¹

The genus *Neltumius* was erected by Bridwell in 1946 for the species *Bruchus arizonensis* Schaeffer. Bridwell did not present a formal description of the genus and it is necessary to rely upon the characters used in the key to genera included in the paper. Bradley, also in 1946, transferred two more species, *Bruchus gibbothorax* Schaeffer and *Bruchus texanus* Schaeffer, to *Neltumius* and included a short generic description. No other species are known which can be referred to this genus. None of the included species have been illustrated heretofore.

Neltumius Bridwell

Neltumius Bridwell, 1946, Jour. Wash. Acad. Sci. 36(2):54; Bradley, 1946, Psyche 53:35.

Ground color black; vestiture of black, white, gray, and ochreous hairlike scales arranged in distinctive patterns. Head carinate, sparsely covered with hairs, punctuation fine; eyes black or brown, deeply emarginate; antennae serrate, reaching base of elytra, similar in the two sexes. Prothorax strongly convex, gibbous; depressed antescutellar area marked with white; apex rounded; pleura concave, without lateral carina or margin, base markedly lobed in middle third, laterad of lobe sinuate; posterior angles acute. Elytra together slightly longer than wide; apices separately rounded with apical margin finely serrate, lateral margins straight or slightly arcuate; striae well-marked, deep strial punctures setose, teeth absent at bases of striae; humeri granulate or with fine transverse carina. Front coxae nearly contiguous at apices, separated basally by narrow triangular prosternum; middle coxae separated by rounded mesosternal plate, hind coxae nearly contiguous, each hind coxa about $1\frac{1}{4}$ times as wide as hind femur; each hind femur with shallowly sulcate ventral margin and with a small single tooth on inner margin of sulcus at apical fourth; apex of each hind tibia with 5 to 7 short teeth surrounding insertion of basitarsus, basitarsus $1\frac{1}{2}$ times as long as remaining four segments; claws lobed at base. First abdominal sternite three times as long as second; second, third and fourth subequal; fifth slightly longer and shallowly emarginate in male but unmodified in female. Pygidium grayish with vague or bold darker markings, nearly vertical.

General discussion: *Neltumius* does not seem to be closely related to any of the other recognized species groupings in the New World. A broad study of world genera of Bruchidae may be necessary to elucidate the relationships of this genus. The structure of the hind femur indicates that it might be an offshoot of the Old World *Bruchidius* complex, but other characters need to be confirmed. Bradley thought that the species in *Neltumius* were probably close relatives of *Gibbobruchus mimus* (Say) because of the gibbous prothorax in *mimus*; but this relationship is remote because of the greatly swollen hind femora with several teeth and the broad, flat body shape of *mimus*. *Gibbobruchus* Pic embraces several species in the tropics and appears to be a close relative of *Specularius* Bridwell and *Caryedes* Hummel.

¹ Entomology Research Division, Agric. Res. Serv., U. S. Department of Agriculture, Washington, D. C.

The wing venation of *Neltumius* is of a fairly consistent type peculiar to most Bruchidae and does not indicate any primitive or specific characteristics.

The distribution of *Neltumius* is apparently restricted to the Sonoran Desert areas of the United States and probably includes parts of Mexico although records are lacking from that country.

Host plant records indicate a preference for species of *Prosopis*, the common and the screwbean mesquite, but further collections are needed. Mesquite is host to several species of Bruchidae. *Neltumius arizonensis* has been reared several times from *Prosopis juliflora* and *N. gibbothorax* from *P. odorata* (screwbean) by Mr. C. D. Johnson. Other records from other host plants may be merely those of adult feeding. More care is needed in recording the true host relationships.

Only two host records are known for *Neltumius texanus*. If they truly reflect the host relationships of this species, they indicate a radical departure from the habits of the other two species in the genus and indeed from known food habits of other Bruchidae. I suspect that the records for *texanus* may reflect only accidental hosts or adult feeding.

KEY TO THE SPECIES OF NELTUMIUS

1. Hind tibia uniformly gray. Dorsum of body mostly grayish-white with prominent patches of dark brown and ochreous setae. Single median gibbosity near anterior margin of prothorax. Prominent elongated white spot at middle of the third interval of elytra. Fine transverse carina on each humerus-----GIBBOTHORAX (Schaeffer)
Hind tibia with brown band at middle of posterior margin. Dorsum with strongly contrasting dark brown and grayish elongated patches. Third interval with two or more elongated white patches separated by dark brown. Humerus carinate or granulate ----- 2
2. Prothorax with prominent paired gibbosities separated by shallow median and transverse channels, posterior pair more prominent than anterior pair. Humerus with fine transverse carina -----ARIZONENSIS (Schaeffer)
Prothorax with gibbosities and channel only slightly indicated. Humerus granulate -----TEXANUS (Schaeffer)

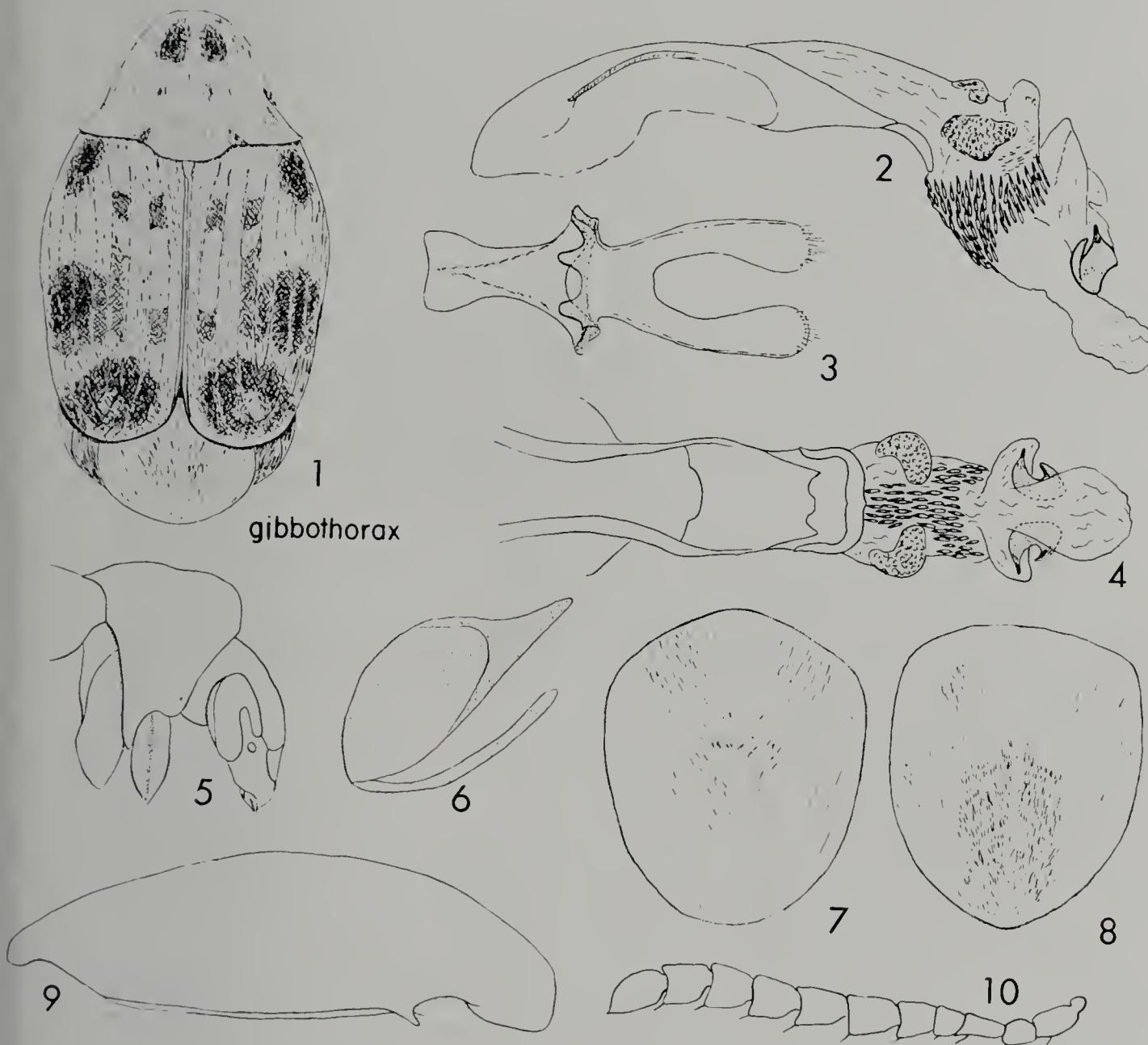
Neltumius gibbothorax (Schaeffer) (FIGS. 1-10)

Bruchus gibbothorax Schaeffer, 1904, Jour. N.Y. Ent. Soc. 12:230; Fall, 1910, Trans. Amer. Ent. Soc. 36:162.
Neltumius gibbothorax: Bradley, 1946, Psyche 53:36.

Color: Dorsum clothed with brown, ochreous, and gray hairs in distinctive pattern (fig. 1); sides and venter with intermixed gray and ochreous hairs; legs evenly clothed with gray hairs; antennae piceous with gray pubescence. *Head*: Antennae as in fig. 10. Fine black median carina extending from interocular fovea nearly to the epistomal suture; vertex finely punctate; frons densely clothed with ochreous and gray hairs; labrum finely granulate. *Prothorax*: Subconical, pleura slightly concave; disk densely covered with ochreous and gray hairs, gibbosity with vaguely defined paired brown blotches; antescutellar area lighter gray; base lobed at middle; apex rounded. *Elytra*: Evenly convex, slightly depressed in scutellar region; humeri prominent and with a fine, serrate, transverse carina connecting bases of striae 6 and 7; striae deep and narrow, strial punctures unisetose. Scutellum white. *Length of body*: Apex of prothorax to apex of pygidium, 2.5-4.0 mm.

Male: Pygidium (fig. 7) evenly convex, uniformly clothed with gray and ochreous intermixed hairs, sometimes with indistinct darker spot in middle; short tuft of gray hairs in middle of first abdominal sternite; posterior margin of last sternite deeply and broadly emarginate; genitalia (figs. 2, 3, 4, 6) with ventral valve U-shaped, separated from apex of median lobe by lightly sclerotized area; everted endophallus girdled by a band of acicular spicules; paired reniform sclerites located laterally near base; paired terminal sclerites as in fig. 6; parameres deeply divided, rounded at apices (fig. 3).

Female: Pygidium (fig. 8) somewhat gibbous at apex; basal half colored as in male, apical half with darker oblong spot divided by lighter median line; first sternite without tuft of hairs; last sternite not emarginate.



FIGURES 1-10, *Neltumius gibbothorax*. 1—Body, dorsal view. 2—Aedeagus, lateral view. 3—Parameres, dorsal view. 4—Aedeagus, ventral view. 5—Prothorax and head, lateral view. 6—Terminal sclerite of endophallus. 7—Pygidium of male. 8—Pygidium of female. 9—Posterior femur, inner aspect. 10—Antenna.

Material examined: ARIZONA: Pinal Mts. (Type locality, lectotype ♀, U.S.N.M. No. 42286); Ft. Yuma, Jan. 20, Apr. 12, Aug. 20, Hubbard & Schwarz; Tacna, May; Alamo Crossing, Bill Williams River, Nov. 21, 1956, *ex* pods of *Prosopis odorata*; Colorado River at Parker, Aug. 15, 1963, C. A. Taschi, at light; 5 miles west of Laveen, Nov. 28, 1959, C. D. Johnson, on *Prosopis odorata*; Bullhead City, Apr. 2, 1956, Werner and Butler, on alfalfa; Phoenix, Feb. 14, 1960, C. D. Johnson, on *Prosopis odorata*. CALIFORNIA: 21 miles north of Blythe, Dec. 8, 1959, C. D. Johnson, *ex* seeds of *Prosopis odorata*; Blythe, June 1, 1956, E. I. Smith, *Prosopis pubescens* seeds. NEVADA: Glendale, May 12, 1930, E. W. Davis, on *Pluchea sericea*. UTAH: St. George, July, Wickham. MEXICO: No specific locality, collected Feb. 1, 1949, in Plant Quarantine Division, U.S.D.A., inspection in seeds of *Prosopis (Strombocarpa) pubescens*.

Discussion: This species is closely related to *arizonensis*, from which it can easily be distinguished by the uniformly gray tibiae, anteriorly placed prothoracic gibbosity, predominantly gray vestiture, and vaguely marked pygidium. From *texanus*, it is distinguished by the carinate humerus, uniformly gray tibiae, distinctive male genitalia, and other characters given in the key.

The male genitalia of *gibbothorax* and *arizonensis* are almost indistinguishable. The only difference I have detected so far is in the shape of the terminal sclerites (figs. 6 and 15), but these may prove to be too variable to be reliable. External characteristics are apparently constant.

Neltumius arizonensis (Schaeffer)

(FIGS. 11-15)

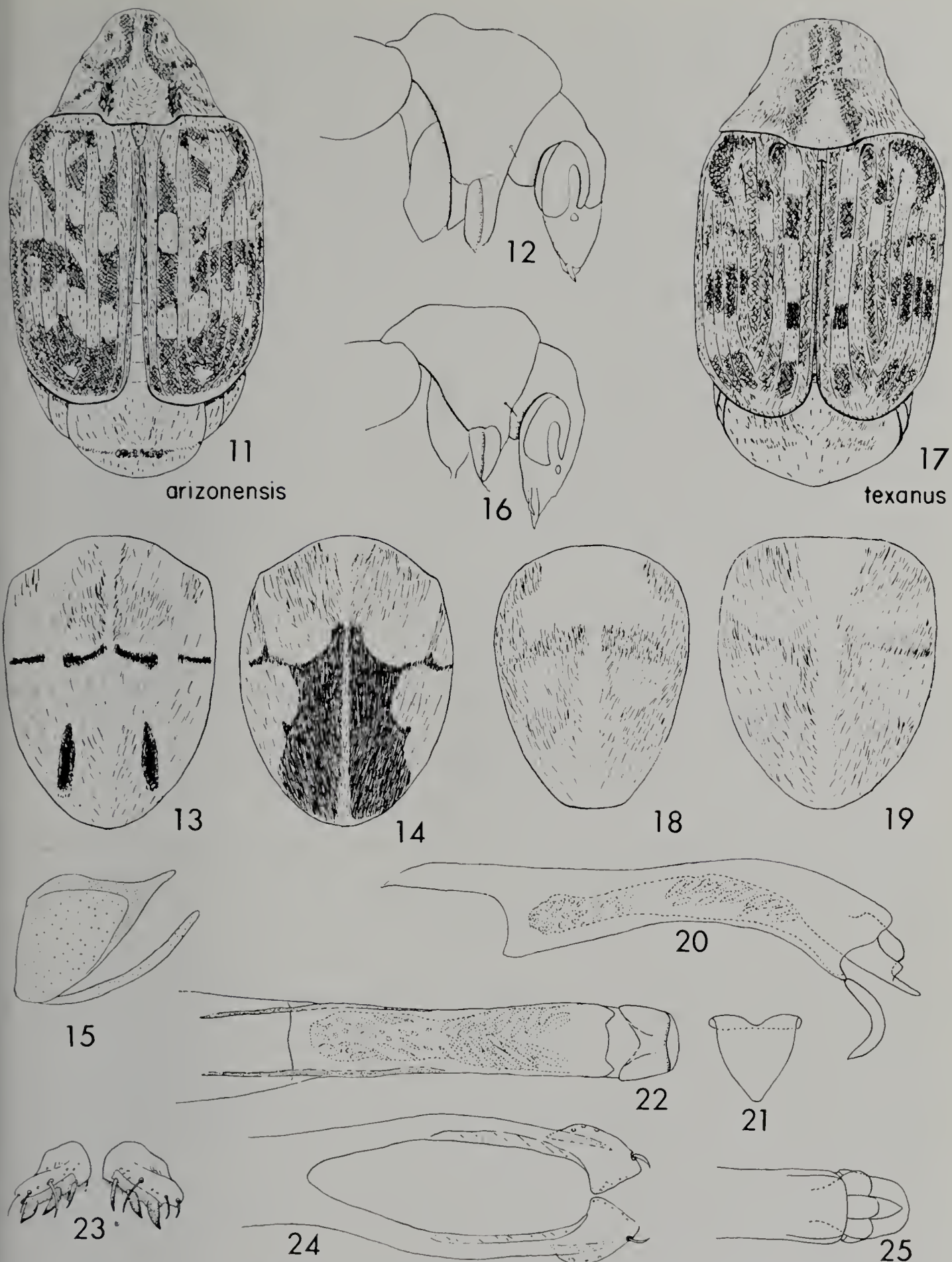
Bruchus arizonensis Schaeffer, 1904, Jour. N.Y. Ent. Soc. 12:229; Fall, 1910, Trans. Amer Ent. Soc. 36:162.

Neltumius arizonensis: Bridwell, 1946, Jour. Wash. Acad. Sci 36(2):54, (generic description); Bradley, 1946, Psyche 53:36.

Color: Dorsum clothed with black and intermixed gray and ochreous hairs in contrasting pattern (fig. 11); sides and venter with gray and ochreous hairs in mottled patterns; legs gray with brown spot or band near apex of each femur and in middle of lateral face of each tibia; antennae piceous with gray pubescence. *Head:* Antennae as in fig. 10; median carina glossy, nearly covered by the gray and ochreous hairs of frons; vertex finely punctate; labrum slightly sulcate. *Prothorax:* Subconical, pleura slightly concave; disk with a gray cruciform indentation separating four dark brown or black gibbosities; antescutellar area whitish-gray. *Elytra:* Evenly convex, slightly depressed in scutellar region; humeri prominent with finely serrate, transverse carina between bases of striae 6 and 7; dorsal pattern composed of gray, ochreous, and black hairs; striae deep and narrow, strial punctures distinct, unisetose. Scutellum white. *Length of body:* Apex of pronotum to apex of pygidium, 2.5-4.0 mm.

Male: Pygidium (fig. 13) evenly convex, gray-ochreous with short, transverse, dark bar in middle and paired longitudinal marks near margin of apex; short tuft of gray hairs in middle of first abdominal sternite; posterior margin of last sternite deeply and broadly emarginate; genitalia discussed under *gibbothorax*.

Female: Pygidium (fig. 14) somewhat gibbous at apex, gray-ochreous with dark T-shaped mark in apical half connected with vague spots near apex, narrow median line gray-ochreous; first sternite without hair tuft; last sternite not emarginate.



FIGURES 11-15, *Neltumius arizonensis*. 11—Body, dorsal view. 12—Prothorax and head, lateral view. 13—Pygidium of male. 14—Pygidium of female. 15—Terminal sclerite of endophallus.

FIGURES 16-25, *Neltumius texanus*. 16—Head and prothorax, lateral view. 17—Body, dorsal view. 18. Pygidium of male. 19—Pygidium of female. 20—Aedeagus, lateral view. 21—Ventral valve, caudal view. 22—Aedeagus, ventral view. 23—Parameres, caudal view. 24—Parameres, dorsal view. 25—Aedeagus, apex, dorsal view.

Material examined: ARIZONA: Pinal Mts. (Type locality, ♀ holotype, U.S.N.M. No. 42285); Miami, 1941, R. L. Furniss, on *Prosopis chilensis*, Nov. 22, 1959, C. D. Johnson, ex seeds *Prosopis juliflora*; Yuma Co., no date; Tucson, May 1, Hubbard & Schwarz, Sept. 2, 1959, H. P. Koenig, Dec. 1953, G. D. Butler, in gin trash, June 11, 1954, M. Cazier, July 23, 1938; Sacaton, Nov. 1, 1935, ex *Prosopis velutina*; Wickenburg, Dec. 18, 1959, C. D. Johnson, ex seeds *Prosopis juliflora*; Scottsdale, Dec. 6, 1959, C. D. Johnson, ex seeds *Prosopis juliflora*; 20 miles north of Florence, Nov. 22, 1959, C. D. Johnson, ex seeds *Prosopis juliflora*; 5 miles west of Laveen, Nov. 28, 1959, C. D. Johnson, ex seeds *Prosopis juliflora*; Ft. McDowell, Nov. 18, 1959, C. D. Johnson, ex seeds *Prosopis juliflora*; Globe, July 4, D. K. Duncan; Arivaca, July 26, 1941, R. H. Beamer. CALIFORNIA: El Centro, Jan. 15, 1945, in mesquite pods; Indio, Sept. 15, 1929; Bard, Oct., 1920, ex seeds *Prosopis chilensis*; Blythe, Feb. 20, 1957, C. Tyndall, Dec. 18, 1959, C. D. Johnson, ex seeds *Prosopis juliflora*; Calexico, Jan. 1, 1945, ex mesquite pods, May 15, 1911. TEXAS: El Paso Co., May 25, 1961, on *Chilopsis linearis*; Presidio, Apr. 27, 1950, J. H. Russell, in light trap. NEVADA: Overton, Apr. 15, 1930, D. Fox on *Covillea tridentata*.

Discussion: The differences between *arizonensis* and *gibbothorax* are discussed under the latter. From *texanus*, *arizonensis* is distinguished by the slightly larger size, carinate humerus, more prominent prothoracic gibbositities, presence of a hair tuft on the basal sternite in the male, and the distinctive genitalia.

Neltumius texanus (Schaeffer)

(FIGS. 16-25)

Bruchus texanus Schaeffer, 1904, Jour. N.Y. Ent. Soc. 12:231; Fall, 1910, Trans. Amer. Ent. Soc. 36:162.

Neltumius texanus: Bradley, 1946, Psyche 53:36.

Color: Dorsum clothed with brown, gray, and ochreous hairs in distinctive pattern (fig. 17); sides and venter with intermixed gray and ochreous hairs; legs clothed with gray and ochreous hairs with median brown band on posterolateral face of each tibia; antennae piceous with gray pubescence. *Head:* Median carina glossy black; frons sparsely covered with gray and ochreous hairs; head finely punctate; labrum bare, somewhat sulcate, yellowish brown at apex. *Prothorax:* Subconical, pleura slightly concave; disk convex with paired brown, obsolete tuberosities near base flanking triangular white antescutellar patch; vaguely defined paired brown spots at apex; base strongly lobed at middle, sinuate laterally, posterior corners acute; apex rounded. *Elytra:* Evenly convex; humeri prominent, granulate, lacking serrate carina of preceding two species; striae narrow and deep with setiferous punctures hardly discernible; scutellum white. *Length of body:* Apex of pronotum to apex of pygidium, 2.0-2.5 mm.

Male: Pygidium (fig. 18) evenly convex, whitish-gray in basal third, mixed gray and ochreous with narrow median gray line in apical third; posterior margin of last abdominal sternite slightly emarginate, apical margin of eighth tergite visible between pygidium and last sternite; tuft of hair on first abdominal sternite in first two species lacking in this species; genitalia with ventral valve deltoid (fig. 21), dorsal valve membranous (fig. 25); endophallus armed with acicular spicules but without terminal or reniform sclerites. Parameres (figs. 23 and 24) deeply divided, armed at apices with stout spines.

Female: Pygidium (fig. 19) with triangular gray spot in middle of base flanked by ochreous spots; faint, brown, transverse median band interrupted by median line of gray; paired vague brown spots near apical margin; last abdominal sternite not emarginate.

Material examined: TEXAS: Esperanza Ranch, Brownsville, May 2 (Type locality, ♀ holotype, U.S.N.M. No. 42287); Victoria, Apr. 6, 1911, J. D. Mitchell, on *Xanthoxylum clava-herculis*; San Antonio, May 10, 1907, E. A. Schwarz; San Diego, May 18 and 31, Hubbard & Schwarz; Winter Haven, May 26, 1949, ex berries *Condalia obovata*; Brownsville, Apr. 28, 1904, May 18-22, 1904, June, Wickham, July 2, 1945, on cotton, July 6, 1945, A. J. Chapman. ARIZONA: Mesa, May 13, 1940.

Discussion: This species, although obviously belonging to *Nelium*, is quite distinctive in several respects. The granulate humeri, the lack of a tuft of hairs on the basal abdominal sternite of the male, and the radically different male genitalia all indicate a distinctly separate line of evolution within the genus. *Texanus* resembles *arizonensis* more closely than it does *gibbothorax* in the color pattern and in the brown-banded tibiae. I was not able to successfully evert the endophallus of *texanus* but it apparently lacks the larger sclerites found in the other two species.

ACKNOWLEDGMENTS

Most of the records in this paper were taken from material deposited in the U. S. National Museum Collections. I wish to thank Mr. C. D. Johnson of the University of California, Dr. George Byers of the University of Kansas, Dr. Floyd Werner of the University of Arizona, and Mrs. Patricia Vaurie of the American Museum of Natural History for loans of additional specimens.



SPHENOPHORUS CICATRISTRIATUS. DAMAGING BLUE GRASS LAWNS IN WASHINGTON STATE (COLEOPTERA: CURCULIONIDAE).

Specimens of *Sphenophorus cicatristriatus* Fahrs., damaging blue grass lawns, were collected by E. C. Klostermeyer, in Benton Co., Washington, June 3, 1963. Larvae were found feeding on the roots, and adults were collected in association with the larvae. Some lawns had several square yards of grass killed, with as many as six larvae per square foot. This species has a known distribution from Alberta, through North Dakota and Montana south to Mexico City, Vera Cruz, and Yucatán. Material in the U. S. National Museum collection is from the following states: North Dakota, Nebraska, Wyoming, Colorado, New Mexico, and now Washington. The North Dakota and Wyoming specimens were collected in short grass near alkali lakes and at a dry saline lake. No additional biological information is available.—ROSE ELLA WARNER, *Ent. Res. Div., A.R.S., U. S. Department of Agriculture, Washington, D. C.*